

BELLCOMM, INC.

955 L'ENFANT PLAZA NORTH, S.W.

WASHINGTON, D. C. 20024

SUBJECT: AAP Airlock Module Coolant,
Debris Collection, and Sonic
Flow Limiter Noise - Case 620

DATE: December 5, 1968

FROM: D. G. Miller

MEMORANDUM FOR FILE~~100-12072~~

Additional information on the AM coolant, debris collection, and sonic flow limiter noise was requested during a briefing to ML on the operation of the Orbiting Assembly ECS.*

Airlock Module Coolant - Coolanol 15**

The major factor attributed to the selection of Coolanol-15 was the fact that this coolant and much of the AM thermal control hardware were used on the Gemini program. Although there were other candidate coolants (freon type) considered, which performed thermally as well as Coolanol-15 and had superior flammability characteristics, the cost involved for requalifying the Gemini hardware with the new coolants was found to be prohibitive. MDC recognizes the flammability of Coolanol-15 and reduces the fire hazard by using all stainless steel lines and leak proof fittings for Coolanol-15 inside the AM. Coolanol-15 has the following properties:

Freezing point	-140°F
Boiling point	415°F
Self ignition temperature	500°F
Specific heat at 50°F	0.436 BTU/lb°F
Density	57 lb/ft ³

Debris Collection**

Debris collection for the coolant and water loops is provided by traps and filters. Debris collection for the ducts is provided by a screen at the duct inlet to each PLV fan. The mesh size for the screen has not been definitely sized, but at this stage of the ducting development they are considering a mesh size of approximately 28. The 28 mesh size would give a fine screen.

* Bellcomm Memorandum for File, "AAP Orbital Assembly Environmental Control Briefing - Case 620," D. G. Miller, November 4, 1968.

** Private Communication - L. Calhoun, McDonnell-Douglas Corporation.

N79-72360

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(NASA-CR-100310) AAP AIRLOCK MODULE
COOLANT, DEBRIS COLLECTION AND SONIC FLOW
LIMITER NOISE (Bellcomm, Inc.) 2 p

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Sonic Flow Limiter Noise*

MSC has witnessed limited sonic flow for repressurizing a Gemini cabin at 21 lb/hr., and also flow through an EVA umbilical from 9 to 10 lb/hr. There is a low level screech from the orifice, but the noise is not loud enough to be disturbing. MSC reports there have been no complaints of noise from personnel operating with sonic limiters.

1022-DGM-ms

D. G. Miller
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* Private Communication - C. N. Crews, MSC-KS.

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Subject: AAP Airlock Module From: D. G. Miller
Coolant, Debris Collection
and Sonic Flow Limiter
Noise - Case 620

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